CLAIM + DETAILED DESCRIPTION

[Claim(s)]

[Claim 1]It is a permanent magnet type electric motor of two poles which were provided with the following and where said electric motor part built a permanent magnet in a rotor core of rotator, An electrically-driven compressor characterized by forming said bearing part with nonmagnetic material while a bore portion is provided in an end of a side which counters said compression mechanism part of said rotor core and a bearing part of said compression mechanism part extends inside a bore portion of said rotor core.
A compression mechanism part stored in an airtight container.
An electric motor part which is connected with said compression mechanism part and driven.

[Claim 2]It is a permanent magnet type electric motor of two poles which were provided with the following and where said electric motor part built a permanent magnet in a rotor core of rotator, An electrically-driven compressor characterized by making this extension portion into nonmagnetic material while a bore portion is provided in an end of a side which counters said compression mechanism part of said rotor core and a bearing part of said compression mechanism part extends inside a bore portion of said rotor core.
A compression mechanism part stored in an airtight container.
An electric motor part which is connected with said compression mechanism part and driven.

[Claim 3]An electrically-driven compressor which is a permanent magnet type electric motor of two poles where said electric motor part built a permanent magnet in a rotor core, and is characterized by each end face of a bearing part not overlapping said rotor core in a projector of vertical section while having the following and forming a bearing part of said compression mechanism part with an iron system material.
A compression mechanism part stored in an airtight container.
An electric motor part which is connected with said compression mechanism part and driven.

[Claim 4]An electrically-driven compressor of Claims 1-3 being the self start form permanent magnet type synchronous motors with which a permanent magnet type electric motor of two poles was provided with rotator which has many conductor bars of a basket form conductor for starting on the perimeter of a rotor core, and lays two or more permanent magnets under the inner side given in any 1 paragraph.

[Claim 5]An electrically-driven compressor given in any 1 paragraph of Claim 1 forming a permanent magnet by a rare earth permanent magnet to Claim 4.

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the electrically-driven compressor used for frozen cold storage equipment, air-conditioning equipment, etc.
[0002]
[Description of the Prior Art]A Prior art is explained using the reciprocation type electrically-driven compressor of drawing 7.
[0003]In drawing 7, 1 is an airtight container of an electrically-driven compressor, and is provided with the compression mechanism part 2 provided in the internal lower part, and the electric motor part 3 provided above this compression mechanism part 2. 4 is attachment ****** and equips the rotator 14 of the electric motor part 3 with the crank part 4a.
[0004]5 is a cylinder block which consists of a casting of an iron system material, and the bearing part 6 in which said axis 4 is inserted, and this bearing part 6 and the cylinder 7 formed almost right-angled are formed.
[0005]9 is a piston which slides on the inside of the cylinder 7, forms the compression space 10 and is connected with said crank part 4a via the connecting rod 8. 11 refuels the compression mechanism part 2 and the axis 4 in the lubricating oil 12 which is an attachment **** oil fill tube and is stored at the tip of said crank part 4a at the bottom of the airtight container 1, and makes lubrication of a sliding part smooth.
[0006]Said electric motor part 3 is an induction motor of two poles which comprise the stator 13 which looped winding around the stator core which consists of a lamination electromagnetic plate and sheet, and the rotator 14 which provides a secondary conductor in the rotor core 15 which consists of a lamination electromagnetic plate and sheet.
[0007]The bore portion 16 is formed in the end of the side which counters the compression mechanism part 2 of the rotor core 15, and the bearing part 6 has extended to the inner side of the bore portion 16.
[0008]Operation of the conventional reciprocated type electrically-driven compressor constituted as mentioned above is explained.
[0009]With rotation of the rotator 14, the piston 9 reciprocates via the connecting rod 8 connected with the crank part 4a of the axis 4, the refrigerant gas in the compression space 10 is compressed, and it is breathed out towards systems, such as frozen cold storage equipment and air-conditioning equipment, through a discharge pipe (not shown).
[0010]The oil fill tube 11 with which the soffit of the axis 4 was equipped rotates, and the oil supply to each sliding part of the bearing part 6 of the compression mechanism part 2, the cylinder 7, the connecting rod 8, and piston 9 grade has here the composition of pumping up the lubricating oil 12 by the pump action, and supplying with oil.
[0011]From a viewpoint of energy saving or a miniaturization, examination for making it small is performed briskly in recent years, and reduction and the height direction of the amount of used electricity of frozen cold storage equipment or air-conditioning equipment, [miniaturization] Since

rotator is brought as much as possible close to a compression mechanism part, while making a part of bearing extend in a bore portion and controlling the run out of rotator, the overall height of the electrically-driven compressor is made low.

[0012]However, by the time it filled the request in the point of efficient-izing of the electric motor which occupies the biggest power consumption in a refrigeration system, it had not resulted.

[0013]Examination of various efficient-izing, such as adoption of the electromagnetic plate and sheet of low core loss, optimization of core shape, or increase in quantity of use material, has been made also about the induction motor of two poles conventionally used for an electrically-driven compressor. However, since the magnetization electric power for forming a magnetic circuit other than the electric power for generating torque and rotating load is required for an induction motor, the efficiency of an electric motor is in a saturation tendency, and also it is in a difficult situation to raise efficiency substantially.

[0014]Then, it noted applying the self start form permanent magnet type synchronous motor of two poles where magnetization electric power becomes unnecessary and high efficiency is obtained to an electrically-driven compressor by building a permanent magnet in rotator as a means of the further efficient-izing of an electric motor.

[0015]One embodiment of this self start form permanent magnet type synchronous motor is described using drawing 8 and drawing 9.

[0016]Since electric motor parts only differ as an electrically-driven compressor, this point is explained.

[0017]17 is the rotator of a synchronous motor and consists of the rotor core 18 where the electromagnetic plate and sheet was laminated, and the boss 19 which fits the axis 4 into this rotor core 18. 20 is the bore portion provided in the end of the shaft orientations of the rotor core 18, and although not illustrated, a part of bearing part 6 of the cylinder block 5 has extended. 20a is a bore diameter of the bore portion 20.

[0018]And the permanent magnet 21 of the polarity is compared with two monotonous forms to the rotator 17, insertion arrangement is carried out at the angle alpha at the shape of mountain shape, one pole of a rotator magnetic pole is formed, and the rotator magnetic pole of two poles is formed by the whole rotator. Here, the width dimension of the permanent magnet 21 is set to P.

[0019]The conductor bar 22 of a large number provided in the rotor core 18 and the short-circuit ring 23 located in the both ends of the shaft orientations of the rotor core 18 are really molded by aluminum die-casting, and the basket form conductor for starting is formed.

[0020]24 is an end plate which consists of a nonmagnetic material for protection which prevents the permanent magnet 21 from being omitted. 25 is a barrier for flux-of-magnetic-induction short circuit prevention for preventing the flux-of-magnetic-induction short circuit between adjacent permanent magnets, and simultaneous molding is carried out with said basket form conductor for starting, and aluminum die-casting.

[0021]If the line of an arrow explains notionally the flow of the flux of magnetic induction of the permanent magnet 21 for drawing 9 to reference, the flux of magnetic induction to which the flow of the flux of magnetic induction which flows through the inner side of each permanent magnet 21 comes out of the permanent magnet 21 of the two upper parts will be inhaled by the two permanent magnets 21 which concentrate and pass along the center section of the rotor core 18, and are shown in a figure Nakashita part, but. The magnetic flux density of the flux of magnetic induction passing through the rotor core 18a near the perimeter of the bore diameter 20a becomes very high.

[0022]
[Problem to be solved by the invention]Thus, although it is possible to change into the conventional induction motor and to use a self start form permanent magnet type synchronous motor, Since the bearing part 6 of an iron system material is located inside the bore portion 20, while the loss torque which magnetic attraction power works [loss torque] and reduces the generating torque of an electric motor between the inner circumference of the bore portion 20 and the bearing part 6 which were magnetized arises, the flux of magnetic induction of the permanent magnet 21 flows into the bearing part 6 side, and core loss (especially eddy-current loss) occurs. In order to compensate this loss torque and core loss (especially eddy-current loss) and to continue operation, it is necessary to switch on the excessive electric power for that formal meeting for engagement as an electric motor, and it becomes a factor which checks improve efficiency.
[0023]An object of this invention is to provide the efficient electrically-driven compressor which lessened the loss torque and core loss (especially eddy-current loss) by magnetic attraction power in the bearing part in view of above-mentioned SUBJECT.
[0024]
[Means for solving problem]In order to attain this purpose, this invention makes nonmagnetic material the bearing part of the compression mechanism part of the electrically-driven compressor carrying the permanent magnet type electric motor of two poles, and extends this part inside the bore portion of a rotor core.
[0025]This invention makes nonmagnetic material the portion to which the bearing part of a compression mechanism part extends inside the bore portion of a rotor core.
[0026]Each end face of a bearing part does not overlap a rotor core in vertical section.
[0027]The permanent magnet type electric motor of two poles has many conductor bars of the basket form conductor for starting on the perimeter of a rotor core, and considers it as the self start form permanent magnet type synchronous motor provided with the rotator which lays two or more permanent magnets under the inner side.
[0028]A permanent magnet is formed by a rare earth permanent magnet.
[0029]
[Mode for carrying out the invention]The compression mechanism part by which the invention of this invention according to claim 1 was stored in the airtight container, It is a permanent magnet type electric motor of two poles where it consisted of an electric motor part which is connected with said compression mechanism part and driven, and said electric motor part built the permanent magnet in the rotor core of rotator, While a bore portion is provided in the end of the side which counters said compression mechanism part of said rotor core and the bearing part of said compression mechanism part extends inside the bore portion of said rotor core, Form said bearing part with nonmagnetic material, and since magnetic attraction power does not work between the inner circumference of a bore portion, and a bearing part, loss torque does not arise, Since said bearing part is nonmagnetic, the flux of magnetic induction from said permanent magnet will not be attracted by the bearing part, but most will pass only along the inside of said rotor core, Therefore, in said bearing part, core loss (especially eddy-current loss) hardly occurs, but it has the operation that the efficient electrically-driven compressor which reflected the well head of the electric motor as it was can be provided.
[0030]The invention according to claim 2 consists of a compression mechanism part stored in an airtight container, and an electric motor part which is connected with said compression mechanism part and

driven, Said electric motor part is a permanent magnet type electric motor of two poles which built a permanent magnet in a rotor core of rotator, While a bore portion is provided in an end of a side which counters said compression mechanism part of said rotor core and a bearing part of said compression mechanism part extends inside a bore portion of said rotor core, Since it is characterized by making this extension portion into nonmagnetic material and magnetic attraction power does not work between inner circumference of a bore portion, and a bearing part, loss torque does not arise, While being able to prevent generating of eddy-current loss among core loss within a bearing part by flux of magnetic induction of a permanent magnet, Since it becomes can use said bearing part as an inexpensive iron system material except a portion which extends inside said bore portion, and possible to form in one with a cylinder block of said compression mechanism part, it has the operation that an efficient and inexpensive electrically-driven compressor can be provided.

[0031]While the invention according to claim 3 consists of a compression mechanism part stored in an airtight container, and an electric motor part which is connected with said compression mechanism part and driven and a bearing part of said compression mechanism part is formed with an iron system material, It is what is a permanent magnet type electric motor of two poles where said electric motor part built a permanent magnet in a rotor core, and is characterized by each end face of a bearing part not overlapping said rotor core in a projector of vertical section, Since most flux of magnetic induction does not flow into the bearing part side when this piling does not exist and eddy-current loss in loss torque or a bearing part hardly occurs even if a bearing part is an iron system material, efficiency of an electric motor can be reflected in a compressor as it is. Since a bearing part can be formed in a casting of an inexpensive iron system material, and one, it can do inexpensive.

[0032]The invention according to claim 4 is the self start form permanent magnet type synchronous motor with which a permanent magnet type electric motor of two poles was provided with rotator which has many conductor bars of a basket form conductor for starting on the perimeter of a rotor core, and lays two or more permanent magnets under the inner side.

[0033]The invention according to claim 5 forms a permanent magnet by a rare earth permanent magnet, and since the rare earth permanent magnet can obtain strong magnetism, small weight saving ****** of an electric motor has the operation that a small weight saving of an electrically-driven compressor can be attained.

[0034]An embodiment of an electrically-driven compressor in which one embodiment of this invention is shown below is described.

[0035](Embodiment 1) It explains using drawing 2 from drawing 1. A longitudinal section of a compressor with which drawing 1 used a self start form permanent magnet type synchronous motor of two poles, and drawing 2 are sectional views which cross a bore portion of rotator of drawing 1.

[0036]A figure is provided with the following.

The compression mechanism part 52 which 51 is an airtight container of an electrically-driven compressor, and was provided in the internal lower part.

The synchronous motor 53 of the self start form permanent magnet type provided above this compression mechanism part 52.

54 equips the rotator 55 of the synchronous motor 53 with the crank part 56 by attachment ******.

[0037]The bearing part 57 which consists of aluminum die-casting in which said compression mechanism part 52 is nonmagnetic material in which said axis 54 is inserted, It consists of the cylinder block 60 which consists of a casting of the iron system material provided with the cylinder 59 on which

the piston 58 slides, the piston 58 is attached to said crank part 56 with the connecting rod 61, and the compression space 62 is made to form in the cylinder 59.
[0038]and the bearing part 57 and the cylinder block 60 -- the bolt B -- attachment ********, the valve chest 63 with a discharge valve or a suction valve (not shown [both]) in the tip of this cylinder 59 -- attachment ********.
[0039]64 is an attachment **** suction muffler at the suction valve side of the valve chest 63.
[0040]65 leads the lubricating oil 66 which is an attachment **** oil fill tube and is stored in the bottom of the **** container 51 at the tip of said crank part 56 to the sliding part of the compression mechanism part 52, and makes lubrication smooth.
[0041]Said synchronous motor 53 comprises the stator 67 which looped winding around the fixed iron core which consists of a lamination electromagnetic plate and sheet of the product thickness L1, and the rotator 55 which consists of the rotor core 68 which consists of a lamination electromagnetic plate and sheet. The bore portion 69 is formed in the compression mechanism part 52 side of this rotator 55, and said a part of bearing part 57 has extended into this bore portion 69.
[0042]70a is a permanent magnet which consists of a ferromagnetic of the neodium, iron, and a boron system which are two rare earth permanent magnets of a monotonous form, Insertion arrangement is carried out and it is laid under the shaft orientations of the rotor core 68 so that the permanent magnet of the polarity may be compared and it may compare in the shape of mountain shape by angle alpha', and the rotator magnetic pole of one pole is formed with two permanent magnets, and the rotator magnetic pole of two poles is formed by the rotator 55 whole. The width dimension of the permanent magnet is set as P'.
[0043]It is better considering workability, to do magnetization work for the magnetic body used as a permanent magnet after insertion fixation here, although it may magnetize before insertion to the rotor core 68 although it is a polarizing method of a permanent magnet, or it may magnetize after insertion.
[0044]Although two permanent magnets of the polarity are arranged in the shape of mountain shape and the rotator magnetic pole of one pole is formed, the rotator magnetic pole of one pole may be formed with one permanent magnet of an arc shape.
[0045]And the conductor bar 71 of a large number provided in the rotor core 68 and the short-circuit ring 72 located in the both ends of the shaft orientations of the rotor core 68 are molded by aluminum die-casting into one, and the basket form conductor for starting is formed. 73 is a nonmagnetic end plate for protection which prevents the permanent magnets 70a and 70b from being omitted.
[0046]in the barrier for magneto short circuit prevention for preventing the flux-of-magnetic-induction short circuit between adjacent permanent magnets, 74 consists of a slot-like hole and is simultaneous molding of said basket form conductor for starting, and aluminum die-casting -- this hole -- it fills up with aluminum die-casting also inside.
[0047]Next, if an arrow line of drawing 2 explains notionally a flow of flux of magnetic induction of the permanent magnets 70a and 70b, flux of magnetic induction which came out of the permanent magnet 70a of the two upper parts is inhaled by the two lower permanent magnets 70b intensively through the rotor core 68 near the perimeter of the bore portion 69.
[0048]Since a narrow magnetic path is selectively formed at this time in the rotor core 68, magnetic flux density serves as a very high value, but. Since the bearing part 57 which extends inside the bore portion 69 is formed from aluminum die-casting of nonmagnetic material, and magnetic attraction power does not work between inner circumference of the bore portion 69, and the bearing part 57, loss torque is not

produced. Since a bearing part does not attract flux of magnetic induction, a loss that flux of magnetic induction flows into the bearing part 57, and produces core loss (especially eddy-current loss) within the bearing part 57 is not generated.

[0049]Therefore, the electrically-driven compressor can make high efficiency of an electric motor reflect, and can provide an efficient electrically-driven compressor.

[0050]although the bearing part 57 was used as the cylinder block 60 in drawing 1 with composition which carried out bolt fixation, it is shown in drawing 3 -- as -- the bearing part 57 -- the cylinder block 60 -- eye **** -- it may fix or press fit fix

[0051](Embodiment 2) Although explained using drawing 4, the same number is given to the same composition as the composition explained by Embodiment 1, and the detailed explanation is omitted.

[0052]75 is a bearing part which consists of nonmagnetic materials, such as aluminum die-casting with which the axis 54 is inserted. 76 is a cylinder block which consists of a casting of an iron system material, and has the bearing part 77 in which said axis 54 is inserted, and the cylinder 59 which slides the attachment **** piston 58 on the crank part 56 of the axis 54 with the connecting rod 61, and forms the compression space 62 in it. And the bearing part 75 extends into the bore portion 69, and fitting connection is carried out with the bearing part 77 of the cylinder block 76 out of the bore portion 69.

[0053]By this, since magnetic attraction power does not work between the inner circumference of the bore portion 69, and a bearing part, loss torque does not arise, eddy-current loss is not produced within the bearing part 75, and an efficient electrically-driven compressor can be realized.

[0054]Although the bearing part 75 described the example which uses aluminum system material, it may be formed with other nonmagnetic materials, such as a copper system and bearing of the charge of a ceramic material.

[0055]Since what is necessary is to make only the bearing part 69 into nonmagnetic material and the bearing part 77 and the cylinder block 76 can really be formed with an inexpensive iron system material, an efficient and inexpensive electrically-driven compressor can be provided.

[0056](Embodiment 3) It explains using drawing 5 and drawing 6.

[0057]Drawing 5 is a longitudinal section of an electrically-driven compressor of this example, and drawing 6 is an important section expansion transverse cross section of drawing 5.

[0058]A figure is provided with the following.

The compression mechanism part 102 which 101 is an airtight container of an electrically-driven compressor, and was provided in the internal lower part.

The synchronous motor 103 of the self start form permanent magnet type provided above this compression mechanism part 102.

104 is attachment ****** and equips the rotator 105 of the synchronous motor 103 with the crank part 106.

[0059]107 is the bearing part formed with the casting of the iron system material, and is formed in the cylinder block 200 and one provided with the cylinder 109 on which the piston 208 slides. Said piston 202 is attached to said crank part 106 via the connecting rod 201, and is making the compression space 202 form in the cylinder 200.

[0060]and the valve chest 203 with a discharge valve or a suction valve (not shown [both]) in the tip of the cylinder 200 -- attachment ********.

[0061]204 is an attachment **** suction muffler at the suction valve side of the valve chest 203.

[0062]205 leads the lubricating oil 206 which is an attachment **** oil fill tube and is stored in the bottom of the **** container 101 at the tip of said crank part 106 to the sliding part of the compression mechanism part 102, and makes lubrication smooth.
[0063]Said synchronous motor 103 comprises the stator 207 which looped winding around the fixed iron core which consists of a lamination electromagnetic plate and sheet of the product thickness L2, and the rotator 105 which consists of the rotor core 108 which consists of a lamination electromagnetic plate and sheet.
[0064]A bore portion was not provided, but to the rotator 105, the electric motor part side edge 107a of the bearing part 107 is separated from an end face of the rotor core 108, and to it, it is arranged so that each end faces 108a and 107a of a bearing part may not overlap said rotor core in a projector of vertical section.
[0065]300a and 300b are the permanent magnets of a ferromagnetic of the neodium, iron, and a boron system which are two rare earth permanent magnets of a monotonous form, Insertion arrangement is carried out and it is laid under the shaft orientations of the rotor core 108 so that a permanent magnet of the polarity may be compared and it may compare in the shape of mountain shape at the angle beta, and a rotator magnetic pole of one pole is formed with two permanent magnets, and a rotator magnetic pole of two poles is formed by the rotator 105 whole. A width dimension of a permanent magnet is set as Q.
[0066]It is better to do magnetization work after insertion fixation of a magnetic body which considering workability serves as a permanent magnet, although it may magnetize before insertion to the rotor core 108 here although it is a polarizing method of a permanent magnet, or it may magnetize after insertion.
[0067]Although two permanent magnets of the polarity are arranged in the shape of mountain shape and a rotator magnetic pole of one pole is formed, a rotator magnetic pole of one pole may be formed with one permanent magnet of an arc shape.
[0068]And the conductor bar 301 of a large number provided in the rotor core 108 and the short-circuit ring 302 located in both ends of shaft orientations of the rotor core 105 are molded by aluminum die-casting into one, and a basket form conductor for starting is formed. 303 is a nonmagnetic end plate for protection which prevents the permanent magnets 300a and 300b from being omitted.
[0069]in the barrier for magneto short circuit prevention for preventing the flux-of-magnetic-induction short circuit between adjacent permanent magnets, 304 consists of a slot-like hole and is simultaneous molding of said basket form conductor for starting, and aluminum die-casting -- this hole -- it fills up with aluminum also inside.
[0070]As compared with Embodiments 1 and 2, they are L2<L1, beta>alpha', and the relation Q>P'.
[0071]Therefore, it may be thought that the amount of flux of magnetic induction by the permanent magnet made to take out from the rotator 105 is obtained in proportion [almost] to the product of magnetic width and the length of shaft orientations, i.e., a magnetic pole area.
[0072]In this example, by a permanent magnet's comparing, extending an angle from alpha' to beta, and expanding the width dimension of a permanent magnet to Q from P', the length of the shaft orientations of a permanent magnet can be shortened and the product thickness of the lamination electromagnetic plate and sheet of the rotor core 108 can be reduced from this.
[0073]On the other hand, the product thickness of the lamination electromagnetic plate and sheet of the stator 207 can be reduced from L1 to L2, and can be made to correspond to the product thickness of the rotor core 108 by expanding the magnetic path of a stator core.
[0074]by this, it decreases by the product thickness of the bore portion 69 in Embodiments 1 and 2, and

there is no bore portion -- the size of the height direction as a compressor can be reduced. Even if the bearing part 107 is an iron system material, generating of the eddy-current loss in the loss torque by magnetic attraction power or the bearing part 107 depends the end face 107a on the leakage flux from the end face of the rotor core 108 by making it become a position which is separated from the end face of the rotor core 108, but. Compared with the case of the bearing part of the iron system material which extends in a bore portion, it is very very small, and can ignore.

[0075]Therefore, an efficient and inexpensive compressor can be provided, without manufacture of rotator becoming easy and increasing height measurement of a compressor, since the bearing part 107 can be formed in one with the cylinder block 200 with a casting of an inexpensive iron system material and there is no bore portion in rotator.

[0076]Although a self start form permanent magnet type synchronous motor was explained to reference, [in Embodiments 1-3] **** of two poles -- only by there being no conductor bar 71 and short-circuit ring 72 (namely, basket form conductor for starting) of rotator also in a brushless electric motor, It is common in that a permanent magnet is laid under the rotator, and same operation effect is generated by making the same physical relationship of a permanent magnet, a bore portion, and a bearing part.

[0077]

[Effect of the Invention]The compression mechanism part by which the invention of this invention according to claim 1 was stored in the airtight container, It is a permanent magnet type electric motor of two poles where it consisted of an electric motor part which is connected with said compression mechanism part and driven, and said electric motor part built the permanent magnet in the rotor core of rotator, While a bore portion is provided in the end of the side which counters said compression mechanism part of said rotor core and the bearing part of said compression mechanism part extends inside the bore portion of said rotor core, Form said bearing part with nonmagnetic material, and since there is no magnetic attraction power between the inner circumference of a bore portion, and a bearing part, loss torque does not occur, Since said bearing part is nonmagnetic, the flux of magnetic induction from said permanent magnet will pass only along the inside of said rotor core, therefore eddy-current loss almost generates it hardly in said bearing part, but it has the operation that the efficient electrically-driven compressor which reflected the well head of the electric motor as it was can be provided.

[0078]Since the bearing part of the compression mechanism part made nonmagnetic material only the portion which extends inside the bore portion of a rotor core, [the invention according to claim 2] While being able to prevent generating of eddy-current loss loss within the loss torque by magnetic attraction power, or the bearing part by the flux of magnetic induction of a permanent magnet, Since it becomes can use said bearing part as an inexpensive iron system material except the portion which extends in said bore portion inner side, and possible to form in one with the cylinder block of said compression mechanism part, it has the operation that it can be considered as an efficient and inexpensive electrically-driven compressor.

[0079]While the invention according to claim 3 consists of a compression mechanism part stored in the airtight container, and an electric motor part which is connected with said compression mechanism part and driven and the bearing part of said compression mechanism part is formed with an iron system material, Said electric motor part is that to which it is a permanent magnet type electric motor of two poles which built in the permanent magnet, and each end face of said rotor core and a bearing part does not overlap a rotor core in vertical section, Since the eddy-current loss within loss torque or a bearing part hardly occurs, the efficient electrically-driven compressor reflecting the well head of the electric

motor can be obtained. Since a bearing part can be formed with the casting of an inexpensive iron system material, an inexpensive compressor can be provided. The invention according to claim 4 can provide a compressor with the high efficiency of a synchronous motor, when the permanent magnet type electric motor of two poles has a basket form conductor for starting in a rotor core and considers it as the self start form permanent magnet type synchronous motor provided with the rotator which lays two or more permanent magnets under the inner side.

[0080]The invention according to claim 5 forms a permanent magnet by a rare earth permanent magnet, and since the rare earth permanent magnet can obtain strong magnetism, small weight saving ****** of an electric motor has the operation that the small weight saving of an electrically-driven compressor can be attained.

[Translation done.]